### (19) World Intellectual Property Organization International Bureau



### 

(43) International Publication Date 17 June 2004 (17.06.2004)

**PCT** 

# (10) International Publication Number WO 2004/050057 A3

- (\$1) International Patent Classification?: A61K 9/107, 47/36, 31/337, 31/425, 31/715, A61P 35/00, A61K 31/00, 39/00
- (21) International Application Number:

PCT/CA2003/001899

- (22) International Filing Date: 4 December 2003 (04.12.2003)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/430,690

4 December 2002 (04.12.2002) U

- (71) Applicants (for all designated States except US): TECH-NOLOGIES BIOLACTIS INC. [CA/CA]; 345 rue des Saguenéens, 2e étage, Bureau 290, Chicoutimi, Québec G7H 6K9 (CA). INRS (INSTITUT NATIONAL DE RECHERCHE SCIENTIFIQUE) [CA/CA]; Bureau 640, C.P. 7500, 2600 Boulevard Laurier, Sainte-Foy, Québec G1V 4C7 (CA).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): BEAUDET, Nicolas [CA/CA]; 851 Chemin Brookbury, Bury, Québec J0B 1J0 (CA). DUPONT, Claude [CA/CA]; 7, rue de Fermont, Blainville, Québec J7B 1L6 (CA). LEMIEUX, Pierre [CA/CA]; 97, Des Chênes, Ste-Thérèse, Québec J7E 4Z2 (CA). SIMARD, Eric [CA/CA]; 585 de Largentière, App. 1, Laval, Québec H7N 4A1 (CA). GOYETTE, Philippe

[CA/CA]; 11820 boulevard O'Brien, Montréal, Québec H4J 1Y8 (CA).

- (74) Agent: OGILVY RENAULT; Suite 1600, 1981 McGill College Avenue, Montreal, Québec H3A 2Y3 (CA).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

### Published:

- with international search report
- (88) Date of publication of the international search report: 2 September 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

national Application No PCT/CA 01899

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A61K9/107 A61K47/36

A61P35/00

A61K31/00

A61K31/337 A61K39/00

A61K31/425

A61K31/715

According to International Patent Classification (IPC) or to both national classification and IPC

Minimum documentation searched (classification system followed by classification symbols) IPC 7 A61K A61P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, EMBASE

C. DOCUM	ENTS CONSIDERED TO BE RELEVANT	DERED TO BE RELEVANT	
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	
T	'Online! XP002280832 Retrieved from the Internet: URL:http://www.roempp.com/thieme-chemistry /roempp/prod/index1.html> 'retrieved on 2004-05-14! the whole document Paragraph 2 on page 1: Use of exopolysaccharide as immunostimulan or drug carrier Table		

Y Further documents are listed in the continuation of box C.	Patent family members are listed in annex.
Special categories of cited documents:      A* document defining the general state of the art which is not considered to be of particular relevance      E* earlier document but published on or after the International filling date      *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)      *O* document referring to an oral disclosure, use, exhibition or other means      *P* document published prior to the international filling date but later than the priority date claimed	"T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.  "&" document member of the same patent family
Date of the actual completion of the international search	Date of mailing of the International search report
24 May 2004	14/06/2004
Name and mailing address of the ISA  European Patent Office, P.B. 5818 Patentlaan 2  NL – 2280 HV Rijswijk  Tel. (+31-70) 340-2040, Tx. 31 651 epo ni, Fax: (+31-70) 340-3016	Authorized officer Luangkhot, N

In the national confication No PCT/CA 01899

		PCT/CA 01899
C.(Continua Category °	citation) DOCUMENTS CONSIDERED TO BE RELEVANT  Citation of document, with indication, where appropriate, of the relevant passages	Indiana.
Odicgory	Chaudi of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X, Y	WO 03/053158 A (DUPONT CLAUDE; PAQUET MARCEL (CA); SIMARD ERIC (CA); LAJOIE NATHALIE) 3 July 2003 (2003-07-03) the whole document page 4, paragraph 2 - page 6, paragraph 2 pages 18-19 page 30, paragraph 2 - page 32, paragraph 1 claims 1,12,27,58; examples 1,6,9,19-22,26,33,37	1-39
Х,Ү	BURNHAM N L: "POLYMERS FOR DELIVERING PEPTIDES AND PROTEINS" AMERICAN JOURNAL OF HOSPITAL PHARMACY, AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, BETHESDA, MD, US, vol. 51, no. 2, 15 January 1994 (1994-01-15), pages 210-218, XP000783643 ISSN: 0002-9289 the whole document abstract page 216, column 2, paragraph 3-6	1-39
Х,Ү	US 2002/131995 A1 (SZOKA FRANCIS C) 19 September 2002 (2002-09-19) the whole document paragraphs '0010!, '0025!; claims 1,12,13,22	1-39
Х,Ү	WO 00/41730 A (BROWN TRACEY; MEDITECH RES LTD (AU)) 20 July 2000 (2000-07-20) the whole document page 3, lines 12-32 page 4, lines 8-13 page 5, lines 13-37 examples 2-8,12 page 75, lines 3-20 page 77, line 5 - page 82, line 17; claims 1-12	1-39
Х,Ү	WO 99/02151 A (ASCULAI SAMUEL S; HYAL PHARMA CORP (CA); MOORE ADRIAN (GB)) 21 January 1999 (1999-01-21) the whole document pages 1-3 page 7, lines 15-22 page 8, lines 20-25 claims 1-10	1-39
Х,Ү	US 6 140 312 A (FALK RUDOLF EDGER ET AL) 31 October 2000 (2000-10-31) the whole document claims; example 7	1-39



		PC1/CA 01899
C.(Continua	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Х, Y	US 6 350 458 B1 (MODI PANKAJ) 26 February 2002 (2002-02-26) the whole document column 1, lines 15-22 column 4, lines 25-27 column 7, lines 13-25 column 10, lines 15-19 column 10, lines 45-47,58-60 column 13, lines 15-18,39,64 column 14, lines 5,58-65 column 15, lines 4-18; claim 1; examples 2-4	1-39
X,Y	NA KUN ET AL: "Self-assembled hydrogel nanoparticles responsive to tumor extracellular pH from pullulan derivative/sulfonamide conjugate: Characterization, aggregation, and adriamycin release in vitro" PHARMACEUTICAL RESEARCH (NEW YORK), vol. 19, no. 5, May 2002 (2002-05), pages 681-688, XP009031095 ISSN: 0724-8741 the whole document abstract	1-39
Х,Ү	AMORENA B ET AL: "Use of liposome-immunopotentiated exopolysaccharide as a component of an ovine mastitis staphylococcal vaccine." VACCINE. 1994, vol. 12, no. 3, 1994, pages 243-249, XP002281061 ISSN: 0264-410X the whole document abstract	1-39
Х,Ү	US 4 578 458 A (PIER GERALD B) 25 March 1986 (1986-03-25) the whole document column 1, lines 14-19 column 1, line 54 - column 2, line 22	1–39
Х,,Y	FR 2 631 829 A (PASTEUR INSTITUT)  1 December 1989 (1989-12-01)  the whole document  page 1, lines 3-5	30-39





Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)
This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1. X Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
Although claims 31-38 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
Claims Nos.:     because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful international Search can be carried out, specifically:
3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)
This International Searching Authority found multiple inventions in this international application, as follows:
As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
Remark on Protest
No protest accompanied the payment of additional search fees.

ŋ

patent family members Informa PCT/C /01899 **Publication** Patent family Patent document Publication member(s) date cited in search report 03-07-2003 WO 03053158 A2 03-07-2003 WO 03053158 Α 12-06-2001 AU 1809501 A US 2002131995 **A1** 19-09-2002 2388026 A1 CA 07-06-2001 **EP** 28-08-2002 1233754 A2 07-06-2001 WO 0139815 A2 US 2003166602 A1 04-09-2003 Α 20-07-2000 WO 0041730 A1 20-07-2000 WO 0041730 01-08-2000 AU 2423100 A CA 2370003 A1 20-07-2000 20-02-2002 CN 1336828 T EP 10-10-2001 1140198 A1 JP 15-10-2002 2002534484 NZ 31-01-2003 512676 A 200105492 A 03-10-2002 ZA WO 9902151 Α 21-01-1999 CA 2208924 A1 09-01-1999 ΑU 8203198 A 08-02-1999 21-01-1999 WO 9902151 A1 US 6140312 Α 31-10-2000 CA 2061703 A1 21-08-1993 AP 475 A 08-03-1996 AT 200736 T 15-05-2001 AU 3488893 A 13-09-1993 AU 4273297 A 15-01-1998 WO 9316732 A1 02-09-1993 CN 1084064 A 23-03-1994 CZ 9300230 A3 12-06-2002 31-05-2001 DE 69330180 D1 29-11-2001 DE 69330180 T2 DK 626863 T3 30-07-2001 EP 0626863 A1 07-12-1994 ES 2156124 T3 16-06-2001 03-10-1994 FĿ 943789 A GR 3036164 T3 31-10-2001 HK 1005983 A1 17-08-2001 HU 75089 A2 28-04-1997 HU 9500652 A3 30-10-1995 IN 175918 A1 28-10-1995 IN 182267 A1 27-02-1999 IN 182348 A1 27-03-1999 179130 A1 IN 30-08-1997 IN 178280 A1 22-03-1997 JP 7506812 T 27-07-1995 MD 960307 A 31-10-1997 MX 9300904 A1 01-10-1993 NO 943044 A 19-10-1994 NZ 249071 A 29-01-1997 ΝZ 22-12-2000 299280 A PL 173211 B1 27-02-1998 PT 626863 T 30-08-2001 RO 117499 B 30-04-2002 SG 28-09-1998 52416 A1 SK 11193 A3 09-09-1993 US 5990096 A 23-11-1999 US 24-10-2000 6136793 A US 5942498 A 24-08-1999

ationa<u>i A</u>pplication No

Informa patent family members

1	li ational	Replication No	
	PCT/CA	/01899	_

Patent document cited in search report	Publication date		Patent family member(s)	Publication date
US 6140312 A		US US US	6218373 B1 6147059 A 6087344 A	17-04-2001 14-11-2000 11-07-2000
US 6350458 B	1 26-02-2002	US US AU AU WO CA EP NZ AU WO EP NZ US BR	6221378 B1 6231882 B1 6017545 A 763251 B2 6814300 A 0115666 A1 2382535 A1 1207853 A1 2003508421 T 517313 A 750197 B2 2505399 A 9940932 A1 1053011 A1 2003522096 T 506024 A 2003171259 A1 9804295 A	24-04-2001 15-05-2001 25-01-2000 17-07-2003 26-03-2001 08-03-2001 08-03-2001 29-05-2002 04-03-2003 30-05-2003 11-07-2002 30-08-1999 19-08-1999 22-11-2000 22-07-2003 01-02-2002 11-09-2003 28-03-2000
US 4578458 /	25-03-1986	AT AU AU CA DE DK EP	52695 T 571495 B2 2548184 A 1226543 A1 3482241 D1 158784 A 0120532 A2	15-06-1990 21-04-1988 27-09-1984 08-09-1987 21-06-1990 24-09-1984 03-10-1984
FR 2631829	01-12-1989	FR WO	2631829 A1 8912106 A1	01-12-1989 14-12-1989